

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P192528

Luminaire Tested: **4WSL-LD2-80-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192528
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L850
Light Source: (238) 5000K CCT, 80 CRI LEDS
EL236N0119D850
Ballast/Driver: OSRAM
OT85W1202772A0DIML

Summary

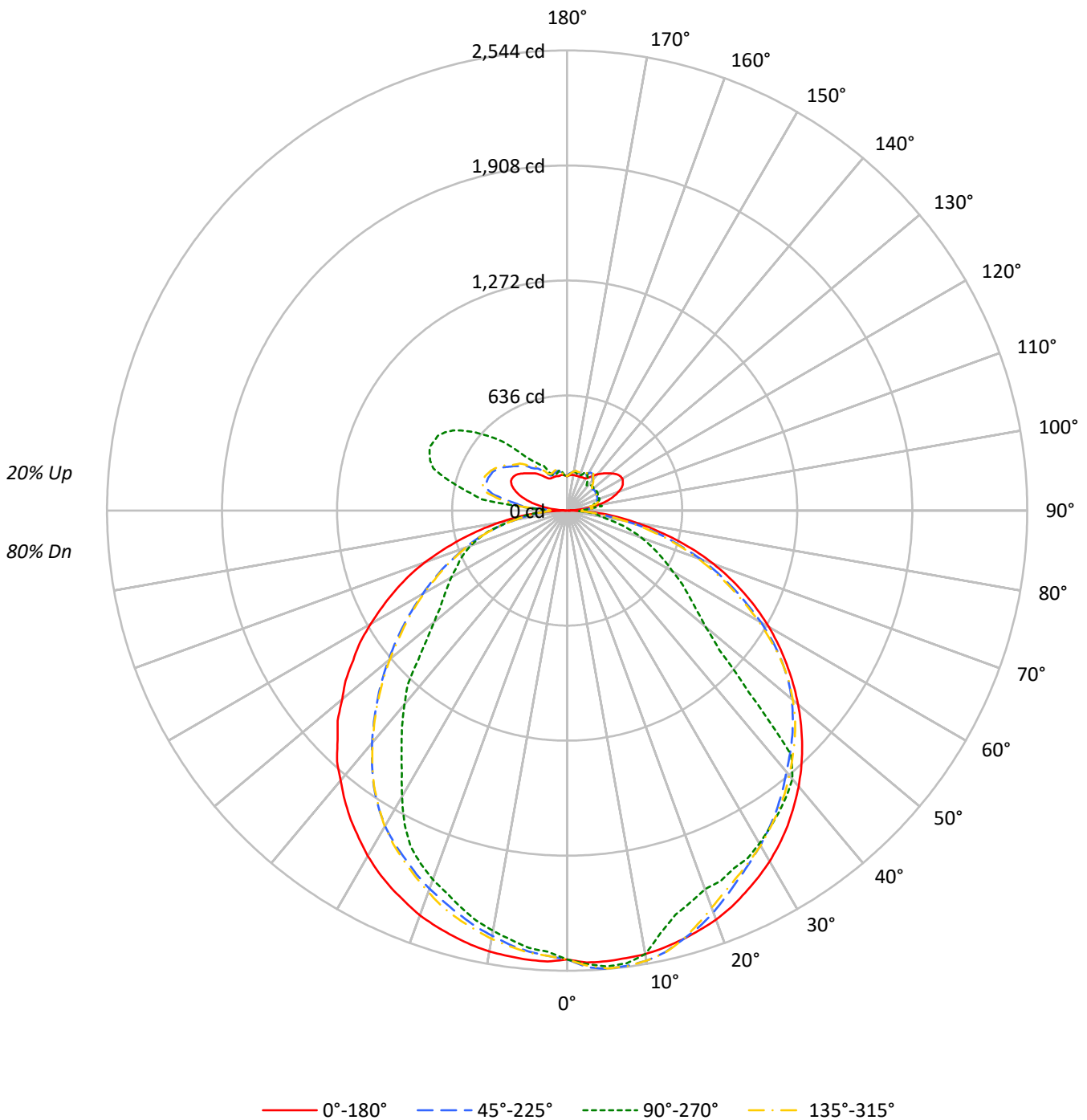
Lumens per Lamp: N/A
Luminaire Lumens: 8781.0 lumens
Efficiency: N/A
Efficacy: 115.5 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 76
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

TEST NUMBER: P192528

CATALOG NUMBER: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	14057	14057	14057	14057
5°	14223	14385	14175	13803
10°	14322	14322	14241	13569
15°	14402	13566	14285	13316
20°	14512	13430	14358	13087
25°	14566	13640	14388	12803
30°	14647	13902	14424	11945
35°	14697	14106	14421	11032
40°	14726	14326	14410	10344
45°	14721	11389	14378	9311
50°	14688	8787	14311	8461
55°	14631	8103	14265	8216
60°	14589	7649	14202	8391
65°	14472	7408	14091	8783
70°	14250	7219	13872	9390
75°	13593	6860	13157	9977
80°	12733	6228	12361	9944
85°	12779	8145	11850	11850



TEST NUMBER: P192528

CATALOG NUMBER: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	236.1	2.7
10°-20°	670.1	7.6
20°-30°	1012.6	11.5
30°-40°	1218.7	13.9
40°-50°	1239.4	14.1
50°-60°	1078.8	12.3
60°-70°	841.5	9.6
70°-80°	520.2	5.9
80°-90°	183.0	2.1
90°-100°	172.3	2.0
100°-110°	333.7	3.8
110°-120°	365.1	4.2
120°-130°	320.1	3.6
130°-140°	239.8	2.7
140°-150°	164.2	1.9
150°-160°	104.5	1.2
160°-170°	61.1	0.7
170°-180°	19.7	0.2
0°-30°	1918.8	21.9
0°-40°	3137.5	35.7
0°-60°	5455.8	62.1
0°-90°	7000.5	79.7
90°-120°	871.1	9.9
90°-150°	1595.1	18.2
90°-180°	1780.0	20.3
0°-180°	8781.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	2481	2481	2481	2481	2481	
5°	2501	2530	2493	2427	2501	238
15°	2456	2313	2436	2270	2456	694
25°	2330	2182	2302	2048	2330	1075
35°	2125	2040	2085	1595	2125	1329
45°	1837	1422	1795	1162	1837	1417
55°	1481	820	1444	832	1481	1325
65°	1080	553	1051	655	1080	1067
75°	621	313	601	456	621	658
85°	197	125	182	182	197	196
90°	3	80	3	125	3	15
95°	77	131	60	262	77	80
105°	245	162	236	698	245	255
115°	339	185	339	838	339	332
125°	345	194	345	772	345	306
135°	291	194	291	564	291	226
145°	228	194	234	336	228	145
155°	202	234	199	231	202	93
165°	199	211	197	214	199	57
175°	197	205	197	199	197	19
180°	191	191	191	191	191	



TEST NUMBER: P192528

CATALOG NUMBER: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2
2.5°	2501.1	2489.7	2526.8	2529.6	2509.7	2518.2	2518.2	2486.9	2495.4	2458.4	2464.1
5°	2501.1	2504.0	2543.8	2541.0	2529.6	2532.5	2541.0	2501.1	2492.6	2441.3	2447.0
7.5°	2495.4	2509.7	2538.1	2535.3	2523.9	2526.8	2541.0	2506.8	2484.0	2424.2	2421.4
10°	2489.7	2504.0	2526.8	2512.5	2489.7	2498.3	2526.8	2504.0	2475.5	2404.3	2387.2
12.5°	2475.5	2489.7	2501.1	2429.9	2390.0	2424.2	2504.0	2489.7	2458.4	2375.8	2353.0
15°	2455.5	2472.6	2458.4	2358.7	2313.1	2344.4	2458.4	2469.8	2435.6	2338.7	2310.3
17.5°	2432.7	2452.7	2415.7	2304.6	2270.4	2284.6	2398.6	2444.1	2410.0	2301.7	2267.5
20°	2407.1	2429.9	2364.4	2247.6	2227.6	2239.0	2335.9	2415.7	2381.5	2261.8	2224.8
22.5°	2372.9	2398.6	2304.6	2207.7	2216.3	2207.7	2278.9	2378.6	2341.6	2219.1	2176.4
25°	2330.2	2358.7	2244.7	2173.5	2182.1	2179.2	2230.5	2330.2	2301.7	2167.8	2122.2
27.5°	2287.5	2316.0	2190.6	2150.7	2165.0	2147.9	2184.9	2278.9	2256.1	2113.7	2071.0
30°	2239.0	2270.4	2136.5	2110.9	2125.1	2113.7	2139.3	2227.6	2204.9	2056.7	2014.0
32.5°	2184.9	2216.3	2079.5	2062.4	2082.4	2068.1	2085.2	2170.7	2145.0	1994.1	1942.8
35°	2125.1	2156.4	2019.7	2019.7	2039.6	2022.5	2031.1	2113.7	2085.2	1931.4	1863.0
37.5°	2059.6	2093.8	1954.2	1968.4	1991.2	1974.1	1974.1	2053.9	2019.7	1863.0	1771.9
40°	1991.2	2028.2	1885.8	1917.1	1937.1	1917.1	1911.4	1991.2	1948.5	1794.6	1677.9
42.5°	1917.1	1957.0	1823.1	1860.2	1834.5	1860.2	1845.9	1925.7	1883.0	1720.6	1581.0
45°	1837.4	1888.7	1760.5	1737.7	1421.5	1720.6	1780.4	1857.3	1794.6	1649.4	1484.1
47.5°	1754.8	1808.9	1692.1	1526.9	1142.3	1509.8	1709.2	1783.3	1720.6	1572.5	1387.3
50°	1666.5	1729.1	1620.9	1344.6	997.0	1327.5	1629.4	1706.3	1623.7	1489.8	1290.4
52.5°	1575.3	1643.7	1541.1	1187.9	900.2	1170.8	1544.0	1623.7	1544.0	1401.5	1196.4
55°	1481.3	1552.5	1447.1	1042.6	820.4	1039.8	1444.3	1535.4	1444.3	1313.2	1102.4
57.5°	1387.3	1467.1	1347.4	937.2	752.0	923.0	1333.2	1444.3	1358.8	1222.1	1011.3
60°	1287.6	1361.7	1239.2	823.3	675.1	820.4	1222.1	1350.3	1253.4	1128.1	923.0
62.5°	1185.0	1267.6	1122.4	723.6	612.5	720.7	1102.4	1244.9	1150.9	1031.2	837.5
65°	1079.6	1159.4	1011.3	643.8	552.6	638.1	991.3	1136.6	1051.2	934.4	757.7
67.5°	971.4	1045.5	900.2	566.9	492.8	561.2	877.4	1022.7	948.6	834.7	672.3
70°	860.3	928.7	786.2	492.8	435.8	490.0	766.3	905.9	837.5	732.1	595.4
72.5°	743.5	806.2	666.6	421.6	376.0	418.8	649.5	786.2	715.0	623.9	527.0
75°	621.0	680.8	555.5	350.4	313.4	347.5	538.4	658.0	601.1	524.2	447.2
77.5°	504.2	564.0	441.5	270.6	239.3	264.9	421.6	538.4	490.0	424.4	364.6
80°	390.3	438.7	324.7	202.3	190.9	202.3	316.2	413.1	378.9	333.3	284.9
82.5°	287.7	316.2	219.3	165.2	165.2	165.2	213.6	293.4	279.2	247.8	216.5
85°	196.6	196.6	148.1	125.3	125.3	125.3	145.3	173.8	182.3	165.2	165.2
87.5°	82.6	85.5	76.9	68.4	65.5	68.4	74.1	71.2	71.2	79.8	99.7
90°	2.8	37.0	62.7	76.9	79.8	74.1	57.0	34.2	2.8	48.4	88.3
92.5°	19.9	79.8	74.1	96.9	99.7	91.2	76.9	62.7	11.4	88.3	94.0
95°	76.9	94.0	145.3	148.1	131.0	125.3	142.4	88.3	59.8	119.6	239.3
97.5°	122.5	142.4	131.0	170.9	193.7	170.9	136.7	136.7	113.9	185.2	279.2
100°	168.1	151.0	133.9	148.1	170.9	151.0	128.2	151.0	159.5	216.5	341.8
102.5°	210.8	168.1	168.1	145.3	148.1	142.4	162.4	165.2	199.4	245.0	421.6
105°	245.0	173.8	176.6	165.2	162.4	165.2	176.6	176.6	236.4	270.6	458.6
107.5°	276.3	179.5	173.8	182.3	185.2	182.3	173.8	179.5	270.6	287.7	467.2
110°	302.0	182.3	176.6	182.3	190.9	182.3	176.6	185.2	299.1	304.8	472.9



TEST NUMBER: P192528

CATALOG NUMBER: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	324.7	185.2	182.3	179.5	188.0	179.5	182.3	190.9	321.9	313.4	472.9
115°	339.0	188.0	182.3	182.3	185.2	182.3	185.2	193.7	339.0	316.2	467.2
117.5°	347.5	193.7	185.2	188.0	190.9	188.0	185.2	199.4	350.4	327.6	464.3
120°	353.2	213.6	185.2	190.9	193.7	190.9	185.2	216.5	353.2	333.3	452.9
122.5°	350.4	222.2	188.0	190.9	196.6	190.9	188.0	225.0	350.4	330.4	438.7
125°	344.7	230.7	188.0	188.0	193.7	190.9	190.9	230.7	344.7	324.7	418.8
127.5°	333.3	250.7	188.0	190.9	190.9	190.9	190.9	247.8	333.3	327.6	398.8
130°	319.0	264.9	182.3	193.7	190.9	196.6	188.0	264.9	319.0	319.0	381.7
132.5°	304.8	270.6	182.3	193.7	193.7	196.6	185.2	270.6	304.8	307.7	364.6
135°	290.6	276.3	193.7	190.9	193.7	193.7	196.6	276.3	290.6	296.3	353.2
137.5°	276.3	279.2	208.0	182.3	190.9	185.2	213.6	279.2	279.2	279.2	336.1
140°	262.1	276.3	219.3	176.6	179.5	182.3	225.0	279.2	267.8	270.6	307.7
142.5°	245.0	267.8	227.9	190.9	176.6	196.6	233.6	276.3	250.7	262.1	293.4
145°	227.9	259.2	245.0	210.8	193.7	219.3	253.5	267.8	233.6	256.4	284.9
147.5°	213.6	245.0	247.8	222.2	213.6	230.7	256.4	256.4	216.5	245.0	264.9
150°	205.1	230.7	239.3	230.7	222.2	242.1	250.7	236.4	205.1	236.4	247.8
152.5°	202.3	219.3	219.3	242.1	239.3	253.5	230.7	225.0	199.4	227.9	225.0
155°	202.3	216.5	210.8	222.2	233.6	233.6	219.3	219.3	199.4	227.9	213.6
157.5°	199.4	219.3	210.8	208.0	213.6	219.3	219.3	222.2	199.4	222.2	213.6
160°	199.4	222.2	213.6	205.1	208.0	216.5	222.2	222.2	199.4	222.2	216.5
162.5°	199.4	216.5	216.5	208.0	208.0	219.3	222.2	219.3	199.4	216.5	222.2
165°	199.4	216.5	219.3	213.6	210.8	225.0	222.2	213.6	196.6	213.6	225.0
167.5°	199.4	210.8	222.2	216.5	216.5	225.0	225.0	210.8	196.6	205.1	225.0
170°	199.4	208.0	219.3	216.5	219.3	227.9	219.3	208.0	199.4	202.3	216.5
172.5°	199.4	202.3	213.6	216.5	216.5	222.2	213.6	202.3	199.4	196.6	208.0
175°	196.6	202.3	208.0	208.0	205.1	213.6	205.1	199.4	196.6	193.7	199.4
177.5°	193.7	196.6	202.3	202.3	196.6	202.3	196.6	193.7	193.7	190.9	196.6
180°	190.9	190.9	190.9	190.9	190.9	190.9	190.9	190.9	190.9	190.9	190.9



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CATALOG NUMBER: 4WSL-LD2-80-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	2481.2	2481.2	2481.2	2481.2	2481.2	2481.2
2.5°	2461.2	2441.3	2447.0	2464.1	2461.2	2501.1
5°	2435.6	2427.1	2427.1	2452.7	2449.8	2501.1
7.5°	2407.1	2392.9	2401.4	2429.9	2438.4	2495.4
10°	2370.1	2358.7	2361.5	2404.3	2418.5	2489.7
12.5°	2333.0	2321.7	2330.2	2370.1	2390.0	2475.5
15°	2290.3	2270.4	2293.2	2335.9	2361.5	2455.5
17.5°	2239.0	2216.3	2239.0	2296.0	2327.3	2432.7
20°	2193.5	2170.7	2184.9	2244.7	2287.5	2407.1
22.5°	2142.2	2113.7	2125.1	2190.6	2244.7	2372.9
25°	2085.2	2048.2	2065.3	2136.5	2196.3	2330.2
27.5°	2011.1	1948.5	1991.2	2079.5	2136.5	2287.5
30°	1908.6	1826.0	1894.4	2016.8	2082.4	2239.0
32.5°	1789.0	1700.6	1774.7	1939.9	2019.7	2184.9
35°	1672.2	1595.2	1663.6	1860.2	1957.0	2125.1
37.5°	1569.6	1498.4	1561.1	1769.0	1888.7	2059.6
40°	1464.2	1398.7	1461.4	1672.2	1820.3	1991.2
42.5°	1367.4	1304.7	1364.5	1575.3	1746.2	1917.1
45°	1264.8	1162.2	1259.1	1475.6	1666.5	1837.4
47.5°	1156.6	1048.3	1148.0	1378.7	1586.7	1754.8
50°	1056.8	960.0	1051.2	1279.0	1501.2	1666.5
52.5°	968.5	885.9	965.7	1179.3	1412.9	1575.3
55°	885.9	831.8	888.8	1088.2	1330.3	1481.3
57.5°	820.4	783.4	823.3	999.9	1239.2	1387.3
60°	763.4	740.6	766.3	911.6	1142.3	1287.6
62.5°	700.8	692.2	700.8	826.1	1048.3	1185.0
65°	646.6	655.2	646.6	749.2	948.6	1079.6
67.5°	595.4	615.3	598.2	666.6	848.9	971.4
70°	538.4	566.9	541.2	592.5	746.3	860.3
72.5°	478.6	512.8	478.6	521.3	638.1	743.5
75°	415.9	455.8	418.8	444.4	535.5	621.0
77.5°	347.5	373.2	353.2	361.8	435.8	504.2
80°	276.3	304.8	279.2	284.9	344.7	390.3
82.5°	230.7	250.7	233.6	216.5	256.4	287.7
85°	170.9	182.3	176.6	168.1	176.6	196.6
87.5°	105.4	111.1	105.4	105.4	91.2	82.6
90°	116.8	125.3	116.8	91.2	51.3	2.8
92.5°	119.6	131.0	119.6	99.7	96.9	19.9
95°	267.8	262.1	284.9	259.2	148.1	76.9
97.5°	415.9	475.7	430.1	310.5	199.4	122.5
100°	478.6	535.5	498.5	387.4	227.9	168.1
102.5°	552.6	615.3	575.4	452.9	256.4	210.8
105°	643.8	697.9	663.7	478.6	282.0	245.0
107.5°	692.2	774.8	706.5	490.0	299.1	276.3
110°	717.9	806.2	740.6	492.8	313.4	302.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	737.8	823.3	754.9	492.8	319.0	324.7
115°	737.8	837.5	754.9	484.3	327.6	339.0
117.5°	737.8	829.0	754.9	475.7	339.0	347.5
120°	712.2	826.1	735.0	464.3	341.8	353.2
122.5°	692.2	803.3	706.5	450.1	341.8	350.4
125°	655.2	772.0	672.3	433.0	336.1	344.7
127.5°	615.3	726.4	629.6	413.1	339.0	333.3
130°	578.3	675.1	586.8	393.1	327.6	319.0
132.5°	529.8	618.2	538.4	378.9	316.2	304.8
135°	484.3	564.0	495.7	367.5	302.0	290.6
137.5°	435.8	507.1	447.2	344.7	287.7	276.3
140°	378.9	435.8	390.3	319.0	279.2	262.1
142.5°	341.8	373.2	353.2	307.7	267.8	245.0
145°	319.0	336.1	327.6	296.3	262.1	227.9
147.5°	296.3	313.4	304.8	273.5	247.8	213.6
150°	287.7	287.7	299.1	253.5	239.3	205.1
152.5°	256.4	279.2	267.8	230.7	233.6	202.3
155°	219.3	230.7	230.7	222.2	233.6	202.3
157.5°	205.1	213.6	216.5	222.2	227.9	199.4
160°	205.1	208.0	216.5	225.0	225.0	199.4
162.5°	210.8	208.0	222.2	230.7	219.3	199.4
165°	216.5	213.6	227.9	233.6	213.6	199.4
167.5°	222.2	222.2	233.6	230.7	208.0	199.4
170°	222.2	227.9	233.6	222.2	205.1	199.4
172.5°	213.6	216.5	222.2	208.0	196.6	199.4
175°	202.3	199.4	208.0	199.4	196.6	196.6
177.5°	196.6	188.0	196.6	193.7	190.9	193.7
180°	190.9	190.9	190.9	190.9	190.9	190.9

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